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Reducing Unplanned Pregnancies in the Navy

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13. ABSTRACT *(Maximum 200 words)*

The objective of this study was to identify promising approaches to reduce unplanned pregnancies in the Navy. A message was sent to Navy commands with women to collect information on efforts to address this problem. Using 1988 and 1992 surveys, responses of first-term enlisted women with planned and unplanned pregnancies were compared to responses of nonpregnant women to identify demographic differences. Finally, civilian studies of efforts to prevent pregnancy among adolescents were examined.

The findings indicated that while only about a third of all commands that responded to the message have pregnancy programs, 60% of the women in the sample are at such commands. Most programs provide little more than information about rights and responsibilities, the costs of pregnancy, and contraceptive methods. The surveys revealed that E-2 to E-4 women who planned their pregnancies were older, in a higher paygrade, and more likely to be married and carry their pregnancies to term than those who had not. The most effective civilian programs for reducing pregnancy incorporate many factors in addition to providing contraceptive information. These factors included developing motivation to use contraception and improving access to contraceptives. Also important are providing instruction, practice, and skill-building in decision making, assertiveness, communications, and other social skills necessary to negotiate abstinence or contraceptive use, and changing the peer group climate to support and reinforce such behaviors.

It was recommended that (1) all routine Navy physicals for first-term men and women include a discussion of risks of pregnancy, sexual transmitted diseases, and contraceptives; (2) the sexuality curriculum in recruit training be expanded to include assertiveness and communication, decision making, and resistance to negative peer pressure; (3) training materials be developed to help sailors assess their personal behaviors and risks, teach the specific interpersonal skills needed to negotiate abstinence or use of contraception, and provide information on physiology and contraception and the costs of parenthood; and (4) training be developed for chief petty officers so that they are comfortable discussing contraception, resisting negative peer pressure, and making life choices with young sailors.

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Foreword

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Summary

Problem

Unplanned pregnancy among adolescents and young adults persists at relatively high levels both within the military and in civilian society, in spite of efforts to reduce it. In the Navy, unplanned pregnancy, especially aboard ships and in aviation squadrons, has the potential to interfere with readiness.

Objective

The objective of this study was to identify promising approaches to reduce unplanned pregnancies in the Navy.

Approach

A message was sent to Navy commands with women to collect information on efforts to reduce unplanned pregnancies. Additional information was gathered by telephone interview from commands with extensive efforts, and teaching materials were reviewed. Second, using 1988 and 1992 surveys, responses of first-term enlisted women with planned and unplanned pregnancies were compared to responses of nonpregnant women to identify demographic differences. Finally, studies of efforts to prevent pregnancy among adolescents were examined, with an emphasis on those performed since 1989, and the results were summarized.

Findings

A review of Navy programs found that while only about a third of all commands that responded have such programs, 60% of the women in the sample are at such commands. Programs are more common aboard ships or in aviation squadrons. Most programs provide little more than information about rights and responsibilities, the costs of pregnancy, or contraceptive methods, while few provide opportunities for skill-building. The more successful Navy programs, according to the commands, establish a command climate of professionalism and provide individual counseling about resisting pressures and about birth control as well as easy access to effective contraception.

A study of pregnancy planning among E-2 to E-4 women found that those who were single and those who were making a career of the Navy were significantly less likely to be pregnant than their married and noncareer peers. Pregnant and nonpregnant women did not differ significantly in paygrade or racial/ethnic group. Women who planned their pregnancies were older, in a higher pay grade, more likely to be married and to carry their pregnancies to term than those who had not.

Studies of the effects of sexuality education on reducing risky sexual behavior among adolescents have reported mixed results. The most effective programs incorporate many factors in addition to providing contraceptive information. These factors included developing motivation to use contraception, and improving access to contraceptives. Also important are providing instruction, practice, and skill-building in decision-making, assertiveness, communications, and

other social skills necessary to negotiate abstinence or contraceptive use, and changing the peer-group climate to support and reinforce such behaviors.

Recommendations

1. Provide an individualized discussion of risks of pregnancy, sexually transmitted diseases, and contraceptive alternatives as part of all routine Navy physicals for men and women.

2. Expand the scope of the sexuality curriculum in recruit training to include assertiveness and skills in communications, decision-making, and resistance to negative peer pressure.

3. Develop training materials, targeted to first-term enlistees, to help sailors assess their personal behaviors and risks, teach the specific interpersonal skills needed to negotiate abstinence or use of contraception, and provide information on physiology and contraception and the costs of parenthood. Distribute these materials to all commands, along with lists of speakers and local resource people, both military and civilian.

4. Provide training to petty officers and chief petty officers so that they are comfortable discussing contraception, resisting negative peer pressure, and making life choices with the young men and women they lead.

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Background and Problem

In spite of years of efforts to reduce them, unplanned pregnancies among adolescents in the United States (U.S.) remains high. In 1988, the most recent year for which figures are available, 619,900 young women aged 18 to 19, or 164 out of every 1,000, became pregnant (Henshaw, 1993). Of these, 62 had abortions, 80 gave birth, and 22 suffered a miscarriage. If, as seems likely, most of the abortions terminated unplanned pregnancies, at least 40% of these pregnancies were unplanned. In fact, the rate of unplanned pregnancies thought to be is considerably higher. For example, Forrest and Singh (1990) estimate that four out of five are unplanned.

Although the number of births to teen mothers has decreased since 1980, the pregnancy rate has remained unchanged because the numbers of adolescents have decreased (Ventura, Taffel, Mosher, & Henshaw, 1992). Compared to 1980, more white adolescents were sexually active in 1988, but because condom use also increased among this group, the pregnancy rate stayed about the same. Among non-white adolescents, who have pregnancy rates about twice that for whites, both the amount of sexual activity and the pregnancy rate were unchanged from 1980 to 1988.

Pregnancy rates among U.S. adolescents are especially high when compared with those from European countries and Canada. In the Netherlands, for example, in 1980, 14 out of 1,000 women aged 15 to 19 became pregnant, whereas in the U.S., 96 of 1,000 women of that age became pregnant. In Canada in 1987, 44 out of 1,000 became pregnant, whereas in the U.S., even among white women only, over twice the number, or 92, became pregnant (Henshaw, 1993). These differences are not due to less sexual activity among western European women or sexual activity at a later age. Adolescents become sexually active at about the same age world-wide (Ehrhardt, 1993), and by the age of 19, 70% of females and 80% of males in the U.S. have become sexually active (Mott & Haurin, 1988). The differences in pregnancy rates are due to less effective use of contraception by U.S. adolescents.

Although pregnancy rates may not have changed since 1980, one thing has changed. In 1980, the consequences of adolescent sexuality without contraception were largely personal—unplanned pregnancies and sexually transmitted diseases (STDs). Since the advent of Acquired Immune Deficiency Syndrome (AIDS), however, what was a personal problem has become a public health issue. Adolescent sexual activity, heterosexual as well as homosexual, is a primary channel for the spread of human immunodeficiency virus (HIV).

The large increase in the numbers of women in the military services in the 70's and 80's made unplanned pregnancies a problem for the military, and not just for the women themselves. Particularly as large numbers of women were trained in essential skill areas, and assigned aboard ships, in aviation squadrons and in combat support positions, the loss of skilled personnel while on maternity leave and the separation of many of these women became a factor that potentially could affect combat readiness.

Of course, just as pregnancies are not caused by women alone, the problem of unplanned pregnancies affects the men involved as well as the women. Most young men in their late teens or early 20's are not ready to accept the emotional and financial burdens of parenthood. Moreover, the military lifestyle and level of pay are not designed for family living at lower enlisted pay grades. Decisions about unplanned pregnancies are difficult for men as well as for women and can be

disruptive to work and unit morale. Problems with divorce, spousal abuse, and child abuse among Navy families might well be reduced if young enlisted men and women would delay marriage and family formation until they were emotionally more mature and financially more able to assume these responsibilities. Yet unplanned pregnancies often result in early marriage. Prevention of unplanned pregnancies, therefore, would have many positive impacts on the Navy.

Objective

The primary objective of this study was to identify promising approaches, from Navy commands or from the research literature, to address the problem of unplanned pregnancies. A secondary objective was to analyze demographic data obtained from two Navy surveys to determine which variables are associated with unplanned pregnancy among women in their first enlistment.

Approach

Three separate approaches were taken to identify ways of reducing unplanned pregnancy. First, current Navy training and other efforts to address the problem were documented. Second, a demographic profile of Navy women who had an unplanned pregnancy was developed. Third, the research literature on civilian programs to reduce pregnancy among unmarried teens and young adults was reviewed.

The Commanders in Chief of the Atlantic, Pacific, and European Fleets were sent a message requesting information from commands that have enlisted women. The message, sent in March 1993, asked for the number of women at the command, ongoing efforts to reduce unplanned pregnancy, and a point of contact (POC) at the command who could provide amplifying information. Commands with significant efforts or ambiguous responses were contacted for structured telephone interviews to learn more about their programs and their perceptions of the programs' effectiveness, and to request copies of training materials being used.

Background variables associated with pregnancy among first term enlisted women were obtained from a biennial survey designed to track rates of pregnancy and single parenthood. The 1988 and 1992 versions of the survey, which contained questions regarding pregnancy planning, were combined and analyzed. Comparisons were made of the responses of women who: (1) were currently pregnant versus not pregnant, and (2) had planned their pregnancy versus had not. Chi-square analyses were performed to test for significant differences between the paired groups.

The research literature on pregnancy prevention and sexuality education was surveyed, particularly that published since the last review was conducted for the Navy by M. D. Thomas and Lawson (1989). The present review concentrated on studies of older adolescents and young adults, because that is the age group of most relevance to the Navy. Because prevention of STDs is so closely linked with pregnancy prevention, that literature was also examined. In addition, studies of prevention of smoking and substance abuse were included where relevant.

Findings

Number of Commands Having Programs

Only a third of all commands responding to the message reported having an ongoing effort to reduce unplanned pregnancy, as can be seen in Table 1. Approximately 12,000 Navy women are assigned to these commands. Thus, 60% of the Navy enlisted women in the sample of respondents were in commands with training or some other program to address the problem (see Table 2).

Table 1

Efforts to Reduce Unplanned Pregnancy by Navy Commands With Women

	With Effort		Without Effort	
Command Type	Number	Percent	Number	Percent
Ship	40	78	11	22
Aviation Squadron	31	41	45	59
Continental United States Shore	36	19	155	81
Overseas Shore	16	28	42	72
Reserve	5	22	18	78
Other	7	100	0	0
Total	135	33	271	67

Table 2

Approximate Number of Women in Commands Responding to Message

	With Effort		Without Effort	
Command Type	Number	Percent	Number	Percent
Ship	6,869	95	324	.5
Aviation Squadron	1,624	45	1,993	55
Continental United States Shore	2,581	37	4,471	63
Overseas Shore	1,060	45	1,290	55
Reserve	99	38	161	62
Other	245	100	0	0
Total	12,478	60	8,239	40

As would be expected, efforts to reduce unplanned pregnancy are more common in commands with greater numbers of women than those with few women. Commands with programs have an estimated mean of 92 women, whereas commands without programs have a mean of 30 women.

Ships (and a few miscellaneous "other" commands) are most likely to have programs. Over three fourths of the ships that responded to the message have some program, potentially providing information to nearly all of the afloat women in the sample. Aviation squadrons are next most likely to have an effort to reduce unplanned pregnancy. Commands under Commander-in-Chief, Atlantic (CINCLANTFLT) more often than CINCPACFLT commands or those in Europe reported having programs. Hospitals and health-care related commands are less likely to have such programs, perhaps because they believe their personnel possess the needed information already.

Types of Navy Programs

Although many women are in commands with pregnancy-planning efforts, the training is often minimal and not all women attend. Few programs described in the responses to the message are of more than 1 hour in length, and they are often given only once a year or every 2 years.

Most sexuality training in Navy commands is knowledge-based, providing information on the costs of pregnancy, contraceptive methods, or within the context of the Navy Rights and Responsibilities (NR&R) course. As Table 3 shows, in many commands the only pregnancy reduction effort is that which is given during command indoctrination.

Table 3

Types of Efforts to Reduce Unplanned Pregnancy in Navy Commands With Women

Command		INDOC[a]		GMT[b]		Birth Control		Videos		Other	
Type	*N*	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Ship	51	30	59	29	57	18	35	14	28	4	8
Aviation Squadron	76	20	26	19	25	13	17	7	9	2	3
CONUS Shore	55	14	7	26	14	22	12	3	2	3	2
Overseas Shore	58	6	10	12	21	10	17	2	3	1	2
Reserve	23	1	4	3	13	3	13	0	0	1	4
Other	7	3	43	5	71	4	57	1	14	0	0
Total	406	74	18	94	23	70	17	27	7	11	3

Notes. 1. INDOC = Indoctrination, GMT = General Military Training, CONUS = Continental United States.
2. The percentages given are percentages of Navy commands who responded to the survey, not all Navy Commands.

[a]Indoctrination training presented when personnel report to command.
[b]General Military Training—usually all-hands training on various topics.

Indoctrination (INDOC)

Usually, the pregnancy training at INDOC consists of the 30-minute review in NR&R regarding pregnancy and parenthood. Because the NR&R presentation is mandatory for all personnel annually, and is required for all personnel within four weeks of reporting aboard, commands that did not mention NR&R in the Navy message probably are conducting this course but do not consider it to be a pregnancy prevention effort.

The NR&R program, although brief, is important in setting the climate for sailors to consider pregnancy within the Navy, stressing as it does that the sailor has made a commitment for at least one enlistment, which includes certain responsibilities (Chief of Naval Education and Training, 1990). It emphasizes the importance of the contribution that each sailor makes to the command and the Navy, and that the Navy values that contribution by providing benefits.

Six commands reported that they provide each arriving woman individual counseling about the existence of pressure for sex from men and how to combat it. In one command, the counseling was provided by a senior woman, who extended an open-door to talk whenever the young sailors wanted to. When she transferred, a male senior Petty Officer assumed this responsibility. The command reported that the man seemed to be as effective and accepted as the woman, particularly when he did the counseling in the context of short- or long-term career goals.

General Military Training (GMT)

GMT is usually all-hands, compulsory instruction on various topics. Eleven commands reported that they periodically conduct GMT on the costs of having children, often, as on the USS DIXON, by using single mothers as instructors. These lessons focus on the financial costs of a family living on the local economy, information most young sailors living aboard ship or on base lack, and on the personal costs in time and stress of balancing a family and a Navy career, particularly for a single parent.

Other topics addressed in GMT include a mix of medical information and personal values. Courses such as "Responsible Sexual Behavior", "Pregnancy Awareness", and "Family Planning" often urge young sailors to think about consequences and provide information on preventing pregnancy or STDs. The Navy's Core Values course also was mentioned as a GMT activity that could be considered a pregnancy prevention effort.

Birth Control Information

Information about contraception was one of the more common pregnancy prevention efforts that was reported, particularly by shore commands. Only 70 commands, 17% of all units in the sample, reported providing this information. These commands include only 30% of the potential women. Although most men and women have had some education on sexual physiology and contraception in high school and information has been provided to some at recruit training command (RTC) since 1990[1], several Navy units reported a great lack of accurate information among their young men and women.

Because the Navy provides medical care to all sailors, it has opportunities to provide medical education to adolescents and young adults at critical times, and several commands reported making good use of these opportunities. The USS FORRESTAL, for example, introduces sailors to contraceptive services that are offered and sets the climate for preventive health services during INDOC briefings. Six commands reported that individual counseling about contraceptive needs is provided to all sexually active sailors at the time of their annual physical examinations. Most respondents believed that this practice was effective in preventing unplanned pregnancies.

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[1]Only RTC, Orlando, FL, presents a course in human sexuality.

Eight of the ships surveyed also reported widespread and convenient distribution of contraception at no cost to the sailors. At all Navy medical facilities in locations where active duty women or dependents are stationed, contraceptive prescriptions can be filled free of charge, providing easy, although perhaps not confidential, access. Respondents at two commands reported providing or planning to provide two relatively new contraceptives, Depo-Provera injections, which provide contraception for 3 months, and implantation of Norplant, providing protection for 5 years. Because these contraceptives do not require remembering to take a pill or use at time of intercourse, the respondents believed they are more effective than older methods in preventing unplanned pregnancies. In addition, several commands publicized the availability of condoms, including provision on the quarterdeck before calls in foreign ports. One senior chief provided two non-Navy-issue condoms to each sailor at quarters before port visits. This procedure avoids the embarrassment of having to ask for condoms and the public notification to other crew members that one is therefore "available". It also allows sailors to redistribute the condoms themselves to whomever needs them the most.

Videos

In addition to NR&R and command-initiated efforts described above, sexuality education programs developed elsewhere are being used at some locations. Commander, Surface Forces Atlantic, for example, has developed a set of four videos called "Choices" to help young sailors think about decisions concerning parenting, contraception, and STDs. This program both stresses abstinence as the most effective method and provides nonjudgmental information on other ways to prevent unplanned pregnancy and STDs, including AIDS. It begins with information about the role of women in the Navy, emphasizing that qualifications, not gender, are important. It includes segments on life choices and planning, on NR&R, and on contraceptive methods, with each segment lasting 15 to 20 minutes. Another available video that was mentioned was "Navy Pregnancy Policy", an explanation of OPNAVINST 6000.1A (Chief of Naval Operations, 1989). "The Price is Right" is a video developed by a legalman chief aboard USS DIXON. It focuses on the cost of parenting and emphasizes that getting pregnant is an extreme means of escape from sea duty.

Although the videotapes provide important information, they do not include ways to involve the students, and need to be supplemented by small-group discussions or individual activities (Hein, 1989). Time for questions after presentations, although useful, does not allow people who are uncomfortable asking questions in public about sexual topics the opportunity to learn what they need to know.

Other Navy Sexuality Training

In responding to the message, several commands mentioned the PREVENT course as a means for reducing unplanned pregnancy This 36-hour course, given at 33 permanent and about 100 ancillary locations world-wide, provides early intervention on a variety of societal issues such as drug and alcohol abuse, child and spousal abuse, sexual harassment, HIV and other STDs, and extremely aggressive behavior. Approximately 42,000 personnel attend each year, by volunteering, by being ordered to attend because of problem behaviors, or by being at a command that sends all E-5's and below. The course addresses responsibility in sexuality as well as in many other potential problem behaviors by relating such behaviors to an individual's values. It also

teaches skills for changing or controlling the student's thinking and body responses to resist addiction pressures.

Unfortunately, because of the program's origins in preventing substance abuse and discipline problems, its perspective tends to be rule-oriented. It emphasizes self-knowledge, self-control and behavioral contracts, which are useful approaches. Its tone is more appropriate for sailors who have had behavior problems in the past, its intended audience, than for young inexperienced sailors. PREVENT's perspective on sexual behavior is grounded in mutual agreement, emphasizing the need to be clear about the partner's willingness and how it is affected by drugs and alcohol. This is a good perspective for rape prevention. It is not particularly useful for prevention of unplanned pregnancy, however, unless it teaches assertiveness and communication skills that would generalize to negotiation about contraceptive use.

Role of Leadership in Command Efforts

In several commands, respondents mentioned the importance of leadership in developing a command climate that fosters low rates of unplanned pregnancy. They mentioned factors such as overall morale and good petty officer leadership, as well as making punishment for infractions of military discipline equitable to both parties involved. According to two respondents, senior enlisted women and women officers need to be distributed throughout the ship so that they can provide positive role models of women with Navy careers. Others stressed the importance of informal counseling in one-on-one situations to deal proactively with issues of pregnancy, particularly before deployments.

The most comprehensive program identified from the responses was that aboard USS ACADIA. The following is a direct quote of the administrative message that was sent.[2]

> During INDOC division, the CO personally discusses the typical date rape scenario and the need for both parties on a date to understand the risk of drinking and unplanned sex. During Captain's Call overseas, the subject of unplanned parenthood and the lifelong financial and personal options, consequences of motherhood and fatherhood have been discussed. ACADIA actively promotes the idea that men as well as women must behave responsibly and have a role in the prevention of unplanned pregnancies and the prevention of disease.
>
> Before each port-of-call, POD (i.e., plan of day) notes are used to remind crewmembers that free condoms will be provided in the medical dept on a confidential basis. In addition, condoms are available on each brow (i.e., entrance/exit) for the crew to take as they go on liberty.
>
> All crewmembers who are diagnosed with a sexually transmitted disease receive extensive counseling on the use of condoms, as well as other birth control methods, by a physician or preventive medicine tech.
>
> Every female crew member receives a complete interview and gynecological eval yearly by one of the two female physicians. At this, and virtually every other patient contact, the subject of birth control is addressed. Females who are not presently using birth control, but are

[2]Commander, Destroyer Squadron Thirteen administrative message R 29170Z Mar 93 ZYB PSN 043395S24.

sexually active are urged to consider one of the many reliable options available. Those who have a birth control method but are interested in other methods are given complete counseling on the features of every option for their convenience. Patients are able to fill prescriptions for a wide variety of oral contraceptives immediately in ACADIA's medical dept.

ACADIA recognizes that any effort to curb unplanned pregnancy depends on the ready availability of convenient, safe, and effective methods. Additionally, ACADIA believes contraceptive methods should be useful for a broad range of individuals, economical, and requiring a minimum of effort on the part of the service member. The approval by the FDA in January 1993 of Depo-Provera injections for female birth control has made available a method that meets every criteria desirable for birth control. This simple method requires a single injection once every three months. Patient compliance is excellent, and can be tracked and verified by the med dept. The cost for a year's supply is less than that for oral contraceptive, the efficacy is better (0.64% pregnancy per year), and the side effect profile is minimal. After just two months, this method has become enormously popular. ACADIA doctors believe within a year perhaps half the female crew will be using this method, and has requested additional allowance of the medication.

Each person who has a positive pregnancy test is interviewed and counseled by a member of the medical dept on the implications of pregnancy, as well as their rights and responsibilities. Members who become pregnant remain aboard until their 20th week to expose shipmates to the reality of the affects of pregnancy.

Additional Information Obtained From Respondents

Almost 50 telephone interviews were conducted with command POCs. Most of these contacts were initiated to clarify or amplify information in the written response to the message, and at other times they resulted from POCs phoning the researcher. The POCs were asked whether the efforts being conducted had been effective in reducing unplanned pregnancy. Most believed their programs had been helpful. This evaluation was particularly true of programs that focused on the costs of parenthood and for command efforts that provided counseling and contraceptive information on an individual basis, as well as easy access to contraception.

Two themes characterize the command-initiated telephone calls. The first was more a question; i.e., why were only commands with women targeted in the message. These POCs wanted to emphasize to the Navy that prevention of unplanned pregnancy is a problem for both sexes, and efforts should be directed to both. The other theme was a plea for lesson plans, materials, and guidance on initiating a program to reduce unplanned pregnancy. As demonstrated in Table 1, two thirds of the commands responding to the message do not have such a program but recognize the need.

Course at Recruit Training Command, Orlando

Recruit training is one opportunity for sexuality education to be provided to all enlisted men and women. At present only RTC, Orlando, where enlisted women are trained, presents such a course. Since May 1990, an entire day of recruit processing has been devoted to the Women's Active Duty Health Care Clinic. In 1992, a half-day men's version of the course was added for male

recruits. The issues emphasized in both clinics are male and female reproductive systems, contraception, treatment and prevention of STDs, and awareness of sexual assault and date rape. In addition, self-examination for breast or testicular tumors is taught.

The course at RTC, Orlando is informational and relatively free of personal values. Abstinence is presented as an option to contraception. However, the emotional and financial burdens of parenthood during the first enlistment are not presented. Responsibility for sexual behavior to oneself, one's partner, and the Navy, also is not discussed.

Summary

Navy programs to reduce unplanned pregnancy have both strengths on which to build and problems or weaknesses. An important strength is that peers or near-peers are often used as instructors, and the instructors come from a similar background and culture as the students. Moreover, by grounding pregnancy training in NR&R, personal choice, responsibility, and decision-making are emphasized and both men and women are included. In addition, through annual medical examinations, risk counseling and contraceptive information are being individualized and provided free of charge. A final strength is that the Navy provides many alternative career opportunities for women in addition to motherhood, and several ongoing pregnancy planning curricula emphasize the important, equal role that women can play in the Navy.

A major problem with Navy efforts is that, with the exception of NR&R, they do not reach all young sailors. NR&R is the only training most personnel are receiving on this topic, and many commands recognize the need for and requested additional learning tools. Sexuality education is not offered early enough or often enough. Given the high rate of sexually active young adults in the U.S., education on preventing unwanted pregnancy and STDs is needed at all RTCs. Moreover, advanced training should be presented throughout the first enlistment. Sailors who are erotophobic or not planning to be sexually active, may not have attended to the information when it was first presented (Gerrard & Reis, 1989) and may need to hear it again, when their maturity level and life situation have changed (Hein, 1989). With Marine Corps men and women, Royle and colleagues (Royle, Molof, Winchell, & Gerrard, 1986) found a pattern of lack of information or misinformation that put personnel at risk for unplanned pregnancies. The women underestimated the likelihood of pregnancy without contraception, overestimated health risks of the pill, often did not know the most fertile time in a woman's menstrual cycle, and knew little about alternative contraceptive methods. Presentation of contraceptive information seems important, then, in spite of the risk of repetition for some sailors.

Contraceptive information, when provided, tended to be given by women in the medical field (Hospital Corpsmen, nurses and doctors), or representatives from civilian family planning organizations. Women instructors may ease the embarrassment felt by some young female sailors but using men to provide contraceptive information would send the message that birth control is a man's concern, as well. Factors such as qualifications, level of comfort with the topic, and ability to put young adults at ease may be more critical than gender in selecting instructors.

A videotape or other Navy resource could be used to provide financial information concerning early parenthood. It would have to be tailored for the local economy, an activity that might be given

as an assignment to the young sailors themselves. Information on psychological costs and benefits of parenthood, however, may have the most impact if it comes in person, not from a videotape. A single parent from the command probably would be the most effective person to deliver this message.

A weakness of Navy programs is that they provide information, often in a lecture format, but do little to build skills. In addition to videotapes or lecture outlines, commands need curricula that include discussion guides, role-playing exercises, and other techniques to give both men and women practice in resisting pressures for unwanted sexual activity and in negotiating discussion and use of contraceptives. Skill-building exercises among small groups of peers also will foster a climate of peer support for effective contraceptive practices.

The effects of current Navy programs on long-term pregnancy rates of women (or of men causing pregnancies) are unknown because of the many factors impacting on commands, such as personnel turnover and deployment schedules. The results from the review of command programs serve more as an assessment of current practices in sexuality education and identification of promising directions to pursue than as evidence of the effectiveness of specific programs.

Review of Efforts of the Other Services

U.S. Marine Corps

At the Marine Corps Recruit Depot, Parris Island, South Carolina, where all enlisted women receive their initial training, two classes are presented that address prevention of unplanned pregnancy. The first is a 2-hour course titled, "Sexual Responsibility of the Marine." The class is presented as a lecture accompanied by 59 slides. Topics covered include sex and pregnancy prevention (18 slides), STDs (37 slides), and obligations (4). This course is inappropriately titled. Most of the 2 hours are devoted to factual information on various methods of contraception, and names and symptoms of STDs. Only the lecture accompanying the four slides touch on responsibility by addressing military policy concerning availability for worldwide assignment, arranging for custody of children, and moral and financial responsibility to one's sexual partner in the event of an unplanned pregnancy.

Women recruits attend an additional 1-hour course called, "Issues Concerning Pregnancy and Parenthood." This class discusses symptoms of pregnancy, career decisions of pregnant servicewoman, and parenthood. The introductory and ending paragraphs of the lesson plan for this second course encourage responsible sexual behavior. The rest of the course is factual, focusing on U.S. Marine Corps policy regarding pregnancy and parenthood. Both of these classes avoid preaching, but attempt to inculcate conscious decision-making into sexual behavior.

U.S. Air Force

During basic training, airmen attend a lecture on STDs and complete a self-paced written course titled, "Sex Education." The topics covered in the course are rape prevention and birth control, and the airmen are tested on the contents. The birth control section includes a description of the reproductive process, and the advantages and disadvantages of 11 forms of contraception. The material is presented objectively without discussing values, responsibility, or decisions.

Air Force health-care providers reinforce the instruction provided at basic training during gynecological examinations by reviewing the women's contraceptive practices. Since an annual pap smear and breast exam is mandated for women in the Air Force, this practice should result in everyone being interviewed.

U.S. Army

The Army has no organized program to reduce unplanned pregnancy. An Army post commander may, however, request training on STD prevention, contraception, or family planning from the local medical facility. Such training is not standardized and its content is determined by the trainer.

During basic training, drill sergeants present a 1-hour training module on family planning and pregnancy education to incoming privates. The module is informational, focusing on rules and regulations applying to pregnancy, sole parenting, and military obligations. Officers in Community Health Nursing at Fort McClellan, Alabama and Fort Jackson, South Carolina, where most women receive basic training, stated that nurses use interactions with recruits to counsel them on topics related to birth control. For example, when women recruits are vaccinated, nurses will question them about contraception and caution against becoming pregnant within the next 3 months. If time permits, they will also counsel the new privates about loneliness and stress in basic training, and the need to practice safe sex if they are sexually active. Women who report to medical with a gynecological problem also are targets of opportunity for nurses. Usually, they are counseled about how to prevent STDs and are offered contraceptive information.

Pregnancy Planning Among E-2 To E-4 Navy Women

The combined sample from the 1988 and 1992 pregnancy surveys yielded 1,602 women in their first enlistment. The questions on the surveys that constituted the two dependent variables were worded: (1) "Are you pregnant now?" and, referring to the current or most recent pregnancy, (2) "Did you plan this pregnancy?" In 1988 and 1992, 8.6% and 8.4%, respectively, of all Navy enlisted women were pregnant at the time of the survey (P. J. Thomas & Edwards, 1989; M. D. Thomas, 1993). Forty percent of the 1988 sample stated that their most recent pregnancy had been planned, as did 45% of the 1992 enlisted sample.

Pregnant Versus Nonpregnant Women

The sample of E-2 to E-4 women was dichotomized into currently pregnant (11%) and not pregnant (89%). Table 4 presents the percentages that fell into each descriptive category on the five background variables. Pregnant and nonpregnant women did not differ significantly in terms of paygrade or racial/ethnic group. They did differ on the remaining three variables. Consistent with civilian statistics (National Center for Health Statistics, 1992), women between the ages of 20 to 24 had the highest pregnancy rate. Women who were single and those who were making a career of the Navy were significantly less likely to be pregnant than their married and noncareer peers. Looking at these variables across groups, rather than within groups, only 7% of the unmarried first term women were pregnant, and only 8% of the women who planned to make a career of the Navy were pregnant.

Table 4

Description of Pregnant and Nonpregnant Women in Their First Enlistment

Variable	Level	Percentage	
		Pregnant (11%)	Not Pregnant (89%)
Age**	18-19	2	5
	20-24	81	67
	25-29	13	21
	30+	3	8
	Mean	23	24
Paygrade			
	E-2	15	12
	E-3	43	36
	E-4	43	52
	Mean	3	3
Race/Ethnicity			
	White	75	72
	Black	18	21
	Hispanic	5	4
	Other	2	4
Marital Status***			
	Married	58	31
	Single	42	69
Navy Career?*			
	Yes	22	34
	No	78	66

Note. Percentages may not sum to 100 due to rounding

*$P < .05$.

**$P < .01$.

***$P < .001$.

Planned Versus Unplanned Pregnancies

Women in the sample who had ever been pregnant while serving in the Navy were asked a series of questions about their current or most recent pregnancy. The analyses were conducted only on the 620 respondents whose pregnancy had occurred while they were in their first enlistment. Table 5 shows that only 31% of these women stated that their pregnancy had been planned. Women who planned their pregnancies were older, in a higher paygrade, and more likely to be married than those who did not. Planned pregnancies were significantly more apt to result in a live birth than unplanned pregnancies. The two groups did not differ in regards to the command type to which the woman was assigned when she became pregnant, and whether the biological father was in the Navy or not.

Table 5

Women in Their First Enlistment Who Planned Their Pregnancy Versus Those Who Did Not

Variable	Level	Percentage	
		Planned Pregnancy (31%)	Unplanned Pregnancy (69%)
Age*	18-19	7	17
	20-24	70	68
	25-29	19	13
	30+	5	3
Paygrade**			
	E-1 & E-2	13	30
	E-3	42	42
	E-4	46	28
Marital Status**			
	Married	74	27
	Single	26	73
Father in Navy			
	Yes	70	74
	No	30	26
Command Type			
	Shore	80	80
	Ship	17	13
	Aviation Squadron	3	7
Outcome**			
	Live Birth	88	56
	Miscarriage	11	19
	Abortion	1	25

Note. Percentages may not sum to 100 due to rounding

*$P < .01$.

**$P < .001$.

Summary

This analysis of background variables helped define the population of first-term women who are at risk for an unplanned pregnancy. Although the pregnancy rates among 18- to 19-year olds and among single women were relatively low, these pregnancies were apt to have been unplanned. More than two thirds of the women in their first enlistment, moreover, stated that their most recent pregnancy was not planned. These findings suggest that an effective Navy program to reduce unplanned pregnancies could have a major impact on the incidence of pregnancy among first term women.

Literature Review

Correlates of Unplanned Pregnancy

Research on risky sexual behavior has often focused on characteristics and beliefs of women engaging in unprotected intercourse and the influence of peers and male partners on the women's contraceptive practices. Such research is critical to the design of successful interventions.

Demographic Factors

Research that examines the correlates of unplanned pregnancy among civilian adolescents (see Flick, 1986, and Whitley & Schofield, 1986, for summaries), also has identified characteristics of the woman and her situation that make unplanned pregnancy more likely. Some of these variables are demographic. Women who are younger when they become sexually active, non-white women, and those from lower socioeconomic levels and single parent families are more likely than others to become pregnant. Women who have frequent interactions with their mothers and who know about siblings' or parents' contraceptive experiences are apt to be better contraceptors, regardless of whether the experiences were positive or negative.

Personality Characteristics

Personality characteristics also are important. Women with internal locus of control, high self esteem and sense of control, a future orientation, high educational or career goals, and who adopt nontraditional female roles are more effective contraceptors than other women (Allen, Philliber, & Hoggson, 1990; Flick, 1986; Whitley & Schofield, 1986). Self-efficacy, that is, the belief that one is capable of making necessary behavioral changes, has been found to be related to changing risky behavior for HIV (Bandura, 1990; Stall, Coates, & Hoff, 1988). Projects that have sought to prevent pregnancy in low-income adolescents by involving them in programs that increase their sense of self-efficacy and options for the future by giving them enriched activities, "big sisters," and help with schoolwork, have met with some positive results (Allen et al., 1990).

One requirement for successful contraception is comfort with one's own sexuality and ability to plan for sexual intercourse (Cassell, 1984; Whitley & Schofield, 1986). Gerrard and her colleagues (Gerrard, Kurylo and Reis, 1991; Gerrard & Reis, 1989; Goldfarb, Gerrard, Gibbons, & Plante, 1988) found that young adults who are not comfortable with their own sexuality retain less contraceptive information than others due to selective inattention, although they retain the information when it is presented in a way that requires their attention (Gerrard, Gibbons, & Warner, 1991).

The Male Partner and the Relationship

Another factor affecting a woman's use of contraception is her partner's involvement. Contraception is more likely to be practiced in committed relationships (Flick, 1986; Whitley & Schofield, 1986), although condom use tends to be more common in new or casual relationships (Des Jarlais & Friedman, 1988; Rosenthal & Shepherd, 1993). Women who have a sense of power and influence in their relationships and are able to discuss contraception with their partners are more likely to use contraceptives than women who lack these factors. Inazu (1987) found effective

contraception in a relationship to be most highly related to measures of sex-related communication, and secondarily to affection for the partner, but not to predictability of intercourse. Mays and Cochran (1988) emphasize that use of contraception in a relationship occurs in a very complex interpersonal decision-making framework that includes issues of personal identity, psychological issues, social networks that provide ongoing emotional and tangible support, and social, ethnic and cultural norms that may be different for non-white women than they are for the majority culture. They caution that asking non-white women, in particular, to change sexual and contraceptive habits may have repercussions throughout their social system, not just in their sexual practices.

Because of the importance of partner involvement, information on male attitudes toward contraception is needed (Brooks-Gunn, Boyer, & Hein, 1988). With increasing concern about AIDS, from which condoms offer some protection, interest in males' attitudes toward condoms and condom use has increased. A recent study of California high school students found that males were more knowledgeable than females about condom use, more comfortable with obtaining them, and more likely to have used contraception, but less likely to report planning to use contraception in the future (Leland & Barth, 1992). Males' condom use was related to perceived reduction in pleasure and to their partners' attitudes about use (Gerrard, Breda & Gibbons, 1990; Pleck, Sonenstein & Ku, 1993; Rise, 1992; Whitley & Schofield, 1986). Males living in poor neighborhoods, non-white males, and those with more traditional gender-role attitudes were more likely than other males to report that fathering a child would be a positive experience and enhance their masculinity. Non-white males, however, were more likely to have discussed and used contraception with their last partner than white males (Marsiglio, 1993).

Effects of Alcohol and Other Drugs

Substance abuse has been associated with risk behaviors or decreased contraceptive use in several studies (Hingson, Strunin, Berlin, & Heeren, 1990; Stall et al.,1988). One study (Gillmore, Butler, Lohr, & Gilchrist, 1992), however, found that when other characteristics associated with risky sexual behavior (i.e., including family bonding, parental monitoring, commitment to conventional values, peer associations, self-esteem, and delinquent activities) were controlled, the association between substance abuse and risk-taking sexual behavior disappeared. Another study (Hingson et al., 1990), which examined the relationship between drugs, alcohol, and condom use, employed a within subjects, rather than across subjects design. The authors found that among those who drink or use drugs, 16% said that they used condoms less often after drinking, and 25% said they used them less often after taking drugs.

Peer Norms

Norms of peers are related to sexual activity and contraceptive use (Whitley & Schofield, 1986; and see Walter et al., 1992 for peer effects on AIDS prevention). Adolescents who are more independent from peers are more likely to use contraception than those who are dependent. Assertiveness, particularly assertiveness in social and dating situations or about substance abuse, has been related to low risk behaviors, including caution in sexual relationships and condom use (Yesmont, 1992) and less substance abuse (Wills, Baker, & Botvin, 1989).

Cost and Benefits of Pregnancy

One approach to studying contraceptive behavior has been an economic and psychological analysis of the costs and benefits of having a child. Luker (1977) proposed that women for whom the costs of abortion or unintended pregnancy are low are more likely not to use contraception, while those for whom the costs are high are more likely to be effective in their use of contraception. Research at a community level of analysis generally supports this approach (Hogan, Astone, & Kitigawa, 1985; Mosher & McNally, 1991). Community-level measures of (lack of) opportunity, such as levels of poverty and segregation, are significantly related to both unmarried and married women's use of contraception. A recent national study by Grady, Klepinger, and Billy (1993) investigated community-level factors that influence women's perceptions of the costs of pregnancy and the costs of using contraception. They hypothesized that "a woman who faces high costs if she has an unintended pregnancy will probably use an effective method unless the monetary, access, psychic, or health costs of doing so are prohibitive. Conversely, a woman who perceives the costs of pregnancy as very low may use an effective method only if the costs of obtaining and using such a method are also low" (p. 5). They found that community-level factors, such as community socio-economic status, liberalism, religiosity, work force opportunities, and social disorganization, were related to contraceptive use among married women in ways consistent with their effects on opportunity costs of having children. The relationships also were independent of the effects of individual-level variables.

On an individual level of analysis, Luker's theory has been developed into the theory of reasoned action to predict contraceptive intentions and behaviors among both men and women. Research measuring the perceived costs and benefits of pregnancy and contraception for adolescents (Adler, Kegeles, Irwin, & Wibbelsman, 1990; Kalmuss, Lawton, & Namerow, 1987; Whitley & Schofield, 1986) generally supports the usefulness of Luker's model for understanding contraceptive behavior among women, although support among men is weaker.

Access to Contraception

Access to contraception affects its use, including factors such as cost, availability, and embarrassment associated with obtaining contraceptives. Perceptions of these factors may be as important as the factors themselves (Whitley & Schofield, 1986). For example, in a national study, Grady et al. (1993) found that effective contraceptive use by married women was positively related to the presence of family planning clinics in a community.

School-based clinics began with much promise as a convenient way to deliver contraceptives to adolescents (Kirby, 1986). Recent evaluations, however, have not always found a strong relationship between the presence of such clinics and improved contraceptive practices. Although Hirsch and his colleagues (Hirsch, Zabin, Streett, & Hardy, 1987) did not examine pregnancy rates, they found school-based clinics in Baltimore to be effective in reaching adolescents, particularly difficult-to-reach junior high males. These clinics reached many sexually active adolescents who previously had received no services. Kirby, Waszak, and Ziegler (1991) found that, although students used the clinics as a source for obtaining contraception, school-wide pregnancy rates were not significantly lower in schools with clinics than in other schools. In another study, Kirby and his colleagues again failed to find effects of school-based clinics on school-wide birth rates (Kirby, 1993), although

others (Hauser & Peak, 1993; Edwards, Ball, Reif, & Zimmerman, 1993) suggested that a different analysis might have found program effects.

An attempt to make clinics more user-friendly improved adolescents' use of contraception and decreased their pregnancy rate in a study by Winter and Breckenmaker (1991). The intervention included staff training, additional staff time spent with adolescent clients, special protocols for adolescents, a survey given upon arrival to identify potential problem areas followed by counseling to address the problems, staff availability in schools, and intensive follow-up. The study found that not only did the women continue to use their contraceptive method effectively, but they were more prepared to cope with any problems that occurred.

Because medical care and contraceptives are provided to military women free-of-charge, problems with access might be expected to be less for them than for their civilian counterparts. Nevertheless, Marine Corps women reported dissatisfaction with several aspects of military health care that might keep them from receiving contraceptive services, including waiting times, problems getting to gynecologists' offices, and concerns about privacy and confidentiality (Royle et al., 1986).

Effectiveness of Sexuality Education

Most adolescents in the U.S. have been exposed to some type of sexuality education. About 80% of school districts offer school-based sex education (Hayes, 1987). A national study in 1988 (Ku, Sonenstein, & Pleck, 1992) found that 79% of adolescent males ages 15 to19 have had formal instruction in birth control, 73% have had instruction about AIDS, and 58% have had instruction about resisting sexual activity. Although most studies of sexuality education conclude that it does not increase sexual activity, as opponents have feared (Furstenberg, Moore & Peterson, 1986; Kirby, Waszak, & Ziggler, 1991), it has not produced major decreases in unplanned pregnancies, either.

Knowledge-Based Programs

According to a useful review by Kirby and his colleagues (Kirby, Barth, Leland, & Fetro, 1991), sexuality education efforts have progressed through four generations. The first generation focused on increasing knowledge of sexual physiology and emphasizing the risks and consequences of pregnancy. Evaluations of first-generation efforts showed that they did increase knowledge, but that knowledge was only weakly related to behavior (see also Hayes, 1987, and Geringer, Marks, Allen, & Armstrong, 1993 for similar conclusions). In a review of similar efforts in HIV prevention, Mays and Cochran (1988) found programs that emphasized only fear-arousal generally were not effective.

A positive effect of programs that emphasize knowledge may be to correct adolescents' misconceptions and concerns about contraception. One reason adolescent women do not use contraception is a concern about its safety (Royle et al., 1986, for Marine Corps women; Whitley & Schofield, 1986 and Winter & Breckenmaker, 1991, for civilian young women). Sexuality education courses in school may help allay these concerns (Zabin, Stark & Emerson, 1991).

A recent innovation in this field uses computer assisted instruction to provide knowledge about contraception (Reis & Tymchyshyn, 1992), HIV, and drug use (Schinke, Gordon & Weston, 1990; Schinke & Orlandi, 1990). This method has been shown to increase students' knowledge, but, like other knowledge-based methods, may not affect behavior.

Skill Training

The next generation of sexuality education programs placed less emphasis on knowledge, but focused on values clarification and training in decision-making and communications skills (Lagana & Hayes, 1992). The effectiveness of these programs depends on what was measured. When specific values were emphasized, some value changes resulted; changes in skills, however, did not necessarily generalize to real-life situations. Some studies (reported in Kirby, Barth, Leland, & Fetro, 1991) found skill training had no effect on initiation and frequency of intercourse, while others found that the programs delayed first intercourse, at least for younger adolescents. Small positive effects on contraceptive use are reported by some researchers but not others. Ku et al. (1992) found that adolescents who had instruction in resisting sexual activity reported small but statistically significant decreases in the number of partners and frequency of intercourse, and increases in the use of condoms. Studies of the effectiveness of AIDS and sex education among adolescent males have found, as with females, changes in knowledge and attitudes, but only sometimes changes in sexual behavior (Geringer, et. al., 1993; J. B. Jemmott, L. S. Jemmott & Fong, 1992). Other recent research in preventing adolescent smoking, drug abuse, and AIDS risk behaviors has found that intensive programs that teach these kinds of skills can be effective in changing behaviors, not just knowledge or attitudes (G. J. Botvin, Baker, Dusenbury, Tortu, & E. M. Botvin, 1990; Caplan, Weissberg, Grober, & Sivo, 1992; J. D. Fisher & W. A Fisher, 1992). The lack of consistency in findings may reflect differential effectiveness of varied curricula, approaches, teachers, and characteristics of the setting. Second generation programs, then, show promise, but are not always sufficient to produce behavior change.

Abstinence

The third generation of programs stressed abstinence and, in order not to give mixed messages, often did not include instruction on contraception. C. P. White and M. B. White (1991), in reviewing the impact of the Adolescent Family Life Act that provided the funding and impetus for many of the abstinence programs, found some positive impacts of the abstinence programs, although they cautioned that evaluations often were not rigorous and did not measure long-term change. Program participants perceived that individual strengths, such as self-esteem and confidence in dealing with peer pressure, parent-child communication and knowledge about sexuality had increased, while permissive attitudes and values had decreased. Sexual activity and pregnancies may have decreased, although probably only among virgins or younger adolescents. One study (Christopher & Roosa, 1990) found an increase in noncoital sexual behaviors. S. D. White and DeBlassie (1992), in their review, concluded that abstinence programs were effective in delaying first intercourse among younger adolescents, but had no effect on adolescents who had already become sexually active. Other researchers (Ehrhardt, 1993; Yesmont, 1992) also have found that abstinence is not a likely alternative for those who are already sexually active. While Weed and Olson (1988) stress the importance of separating abstinence from contraceptive information, Tanner and Pollack (1988) suggest that abstinence programs that do not include

contraceptive information may reinforce adolescents' resistance to using birth control as well as to taking responsibility for their behavior as sexual persons.

Theory-Based Programs

Finally, Kirby and his colleagues (Kirby, Barth, Leland, & Fetro, 1991) describe the current fourth generation programs as theory based. These approaches are based both on the successes of the second generation programs and on theoretical approaches that have been effective in other health education areas, such as substance abuse. The theoretical approaches include the health belief model, social learning theory, social inoculation, and cognitive behavior theory.

The health belief model has been useful in predicting health risk-avoidant behaviors, including behaviors to avoid AIDS (Hingson et al, 1990). This model says that people are more likely to engage in risk-avoiding behaviors if they believe that: (1) they are personally susceptible to the risk; (2) the consequences are severe; (3) protective measures are effective; and (4) relatively few barriers prevent using protective measures. This model explains why major behavioral changes have occurred in the gay community in response to AIDS, but have occurred to a much lower extent among heterosexuals. Research has generally supported the model, particularly the importance of personalizing the risk. Several studies (Ishii-Kuntz, 1988; Klepinger, Billy, Tanfer, Grady., 1993) found that beliefs about personal susceptibility are related to behavioral intentions or behaviors to practice safe sex, while knowledge about AIDS is not. Other studies have found that, although adolescents' attitudes toward condoms are positive, their use of them has decreased over time, as has their perception of being at-risk for AIDS (Pleck et al., 1993; Rosenthal & Shepherd, 1993). Personalizing AIDS risk through individual counseling also has been helpful in producing ongoing behavior changes (Stephens, Feucht, & Roman, 1991).

Social learning theory proposes that people learn the content of the health belief model by observing the behavior of others and then by practicing the skills required for the behaviors. Social learning curricula use peers or near-peers as trainers (e.g., senior high student with junior high students) to model appropriate attitudes and behaviors, and provide opportunities for students to practice them. Programs based on social learning theories have been used in both formal (Howard & McCabe, 1990) and informal programs in schools and Planned Parenthood organizations, including "Teen Theater" or teen discussion groups (Minter, 1990), with some evidence of success in postponing initial intercourse. Although peers usually are considered to be people of a similar age, other factors which may be even more important than age for people to be receptive to social learning are similar racial, ethnic, or cultural backgrounds (Flora & Thoresen, 1988; Mays & Cochran, 1988).

Another approach incorporated in fourth generation programs that is related to social learning is social inoculation or social influence. That is, adolescents can be inoculated against social pressures by learning how to identify them, becoming motivated to resist them, and learning skills for doing so. Programs that combat smoking and drug abuse by teaching adolescents ways to resist social influences have been successful (G. J. Botvin et al., 1990; Botvin, Schinke & Orlandi, 1989). In a meta-analysis of smoking prevention programs, Bruvold (1993) found that the traditional rational orientation was the least effective in preventing smoking, programs with developmental or social norms orientations were more successful, and programs with social learning or social influence orientations were most effective in changing behaviors. Results were similar for

changing attitudes about smoking, although differences among the types of programs were smaller. All four program types were equally successful in changing knowledge.

The literature on behavior change in areas such as substance abuse emphasizes that reinforcement for the changed behavior is necessary for it to be maintained. Thus, returning a changed person to an unchanged environment is a prescription for relapse. In reviewing the research on changes in AIDS risk behavior, Des Jarlais and Friedman (1988) report that major behavior changes have occurred, although more in drug use practices than in sexual ones. They conclude that three things are needed for behavior change—knowledge about the risks, readily available means for the change, and sustained reinforcement for the new risk-reduction behaviors. To change AIDS risk-behaviors, they argue that reducing fear of contracting AIDS is probably not enough reinforcement. In addition, new social norms are needed such as those that are developing in some drug-using groups to prohibit unsafe practices or encourage a switch to safer practices. J. W. Fisher (1988) presents similar arguments, using a social network analysis, suggesting that AIDS-preventive behaviors could be changed within peer groups by "selling" them in media campaigns, by changing group norms, and by redefining the desired behaviors so that they are consistent with existing group norms (e.g., preventive behaviors are the masculine thing to do). Efforts to change community norms about contraceptive use and AIDS have had positive effects on the use of contraceptives (Coates, 1990; Mays & Cochran, 1988). J. D. Fisher also suggests an alternative to changing existing group norms; that is, involving the person in new reference groups that have more desirable norms.

For pregnancy prevention, social norms may be needed among adolescents that make safe sex the appropriate thing to do, and obtaining contraceptives, rather than initiating intercourse, a sign of adulthood (Flora & Thoresen, 1988). Particularly for younger adolescents, social norms are needed for ways to express intimacy other than sexual intercourse, practices referred to by Ehrhardt as "outercourse" (Ehrhardt, 1993). Rise (1992) found that condom use was more highly related to adolescents' perceptions of positive norms for using condoms on the part of partners, peers, and family than to adolescents' own beliefs about the condoms. He argues that, because adolescents already know about the positive reasons for using condoms, media campaigns should emphasize partners' desire for their use, rather than the benefits of use. Using peers as trainers, as emphasized in social learning theory, is one way to change the peer culture to develop more positive norms as well as to educate particular students.

A final theoretical perspective used in fourth generation programs is cognitive-behavior theory. According to this theory, adolescents need specific cognitive, interpersonal, and behavioral skills to prevent unplanned pregnancy. They can acquire them effectively through activities that personalize information about sexuality and contraception, that train them in decision-making and assertive communication, and that provide practice in applying their skills in personally difficult situations (Kelly, Lawrence, Hood, & Brasefield, 1989). One program that used these components to teach AIDS risk-reducing behaviors to adults resulted in behavior change even after 4 to 8 months (McKusker, et al., 1992).

Kirby and his colleagues (Kirby, et al, 1991) have done a methodologically rigorous evaluation of a curriculum they developed that incorporates these fourth-generation concepts. In general, they found it to be effective in changing behaviors, as well as knowledge and perceptions of group norms about sexual behaviors. High school students who completed the course were more likely

to delay initiating intercourse or to use contraception than students receiving other sexuality education, with differences largest for women and for low-risk students. Pregnancy rates did not differ significantly between the two groups at the 18-month follow-up, but may have if measured over a longer period of time.

Programs that have been effective in changing behaviors that put people at risk for HIV have many of the components of fourth-generation sexuality education activities, as well. These include: (1) intensive efforts, for 10 or more sessions; (2) assertiveness and coping skills training; (3) ranking and addressing risk behaviors for each participant individually; and (4) structured follow-up to provide ongoing support for behavior change (Rotherman-Borus, Koopman & Ehrhardt, 1991). One study (Winter & Goldy, 1993) found that having adolescent women at a family planning center individually rehearse with their health educator the possible problems they might encounter in negotiating condom use and how they would overcome them significantly increased the number of free condoms they took when they were made available.

Summary

Although contraceptive behavior is influenced by costs and benefits, the research literature shows that providing information on the costs of pregnancy along with the necessary knowledge to prevent pregnancy is not enough to make adolescents or adults effective contraceptors. Human sexual behavior is not a purely rational act and rational approaches alone are not sufficient. Sexuality education programs that include elements in addition to information have been successful. The necessary elements, borrowing from social learning theory (Des Jarlais & Friedman, 1988), seem to include motivation to make the behavior change, the means of change, and reinforcement for the change.

An effective sexuality education program needs to help adolescents gain the information and skills they need to make responsible choices about sexuality and parenthood, and motivate them to want to do so. This requires understanding their preexisting beliefs about the costs and benefits of pregnancy and contraception and influencing those beliefs. Then the program needs to help them make changes by providing the decision-making, communications, assertiveness, and other social skills necessary to negotiate abstinence or contraceptive use, as well as convenient access to inexpensive means of contraception. It includes individual counseling on pregnancy risks and contraception options. Finally, it requires changing the peer-group norms or cultural climate to support responsible sexuality, perhaps the most difficult task of all.

Discussion

An effective sexuality program has the potential to decrease significantly unplanned pregnancies among Navy enlisted women and among the partners of Navy enlisted men. The survey on pregnancy planning among E-2 to E-4 women found that more than two thirds of these women said that their pregnancies were unplanned. Reports from the commands surveyed also suggest that many pregnancies are unplanned; also, that many enlisted men and women lack the information and skills they need to make informed decisions about parenthood and to carry out those decisions.

The command survey demonstrated that current efforts are not adequate. If the commands that responded to the survey are representative of all commands, only 60% of the enlisted women in the Navy are exposed to any program at all. Because units without programs were probably less likely to respond to the request for information than those with programs, the percentage of enlisted women at command having no ongoing effort to reduce unplanned pregnancy is probably considerably higher than the 40% that was found. If enlisted men as well as women are assumed to need education on pregnancy prevention, present efforts are even more inadequate in their coverage.

Most of the Navy programs include information and motivation only, assuming that if sailors decide to prevent pregnancy and have contraceptive information, they will be able to act upon their decisions. The results of many sexuality education research efforts suggest otherwise. Adolescents, including adolescent sailors, require help in learning and practicing the interpersonal skills they need to implement their decisions. This emphasis is absent from most Navy programs.

Both the command survey and the research literature review suggest two useful directions. First, sexuality education efforts are most effective when they provide opportunities to personalize the information and begin to build skills in using it. The fourth generation theory-based programs do this in various ways by involving students in role-playing exercises, identifying potential problems in using contraception and developing possible solutions, and other forms of practice. One approach uses classroom settings with small group discussions and exercises. An example from a military setting is a curriculum called "Making Decisions about Sex, Birth Control, and Parenthood: A Curriculum for Marine Men and Women," developed by ETR Associates (Royle et al., 1986). It provides lessons, activities, practice exercises, and homework assignments that help the students personalize the information and develop skills in using it. Parts of the curriculum could easily be adapted for Navy use and incorporated into existing Navy programs.

Another approach is to provide individual counseling for young women, usually when obtaining contraceptives or other medical services. Using this opportunity to discuss the woman's individual contraceptive needs and experience, and to help her identify possible barriers and ways to overcome them appears to be an effective strategy, both from the responses of Navy commands and from the research literature (Winter & Goldy, 1993). Providing women with individual counseling in resisting peer pressure to engage in sexual behaviors is also important.

A second direction is to provide long-lasting contraceptives with low failure rates, such as injections of Depo-provera and implantation of Norplant. These contraceptives have the advantage of not requiring that women remember to take a pill daily or negotiate condom use at each intercourse. They have a major disadvantage of providing no protection from STDs, however, so some family planning clinics advocate use of condoms in addition to these methods.

An additional contraceptive possibility is emergency contraceptive pills. Also known as "morning-after pills," they contain hormones that prevent pregnancy by disrupting the transport of the fertilized egg and development of the uterine lining. Although not 100% effective, they reduce the expected risk of pregnancy by more than 75% and have been used in Europe for several years without serious side effects. Because they produce nausea, they are not likely to be used frequently, but might provide protection to sexually inexperienced women until they obtain a better method

(Trussell, Stewart, Guest, & Hatcher, 1992). Consideration should be given to stocking them and making their availability widely known among Navy women.

The failure of many programs to reduce unplanned pregnancies suggests that the problem is not an easy one to solve. No one effort on its own is likely to be effective. All components — motivation, means, and ongoing reinforcement of new behaviors—are needed before any real, long-lasting change in the rate of unplanned pregnancy is likely to occur.

Recommendations

1 Provide an individualized discussion of risks of pregnancy, STDs, and contraceptive alternatives as part of routine Navy physicals for unmarried men and women.

2. Expand the scope of the sexuality education curriculum in recruit training to include assertiveness and skills in communications, decision-making, and resistance to negative peer pressure.

3. Develop training materials, targeted to first-term enlistees, to help sailors assess their personal behaviors and risks, teach the specific interpersonal skills needed to negotiate abstinence or use of contraception, and provide information on physiology, contraception, and the costs of parenthood. Incorporate videotapes, small group exercises, and discussion guides into these training materials and distribute to all commands, along with lists of speakers and local resource people, both military and civilian.

4. Provide training to petty officers and chief petty officers so that they are comfortable discussing contraception, resisting negative peer pressure, and making life choices with the young men and women they lead.

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